

Claims

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2  
3 1. An inkjet printer utilising at least one ink reservoir, ink being supplied  
4 from the ink reservoir through a pump chamber, the printer including an ink  
5 pumping mechanism for pressurising the pump chamber, the ink pumping  
6 mechanism including:

7 an actuator for acting on said chamber to pressurise said chamber; and  
8 a cam for placing said actuator in a non-pressurising position wherein the  
9 actuator includes a body portion having an opening therein through which a  
10 camshaft of said cam extends.

11  
12 2. The printer of claim 1, wherein:  
13 said cam is accommodated within said opening.  
14

15 3. The printer of claim 2, wherein:  
16 said actuator includes a cam follower defined by an inner wall of  
17 said opening, said cam acting on said cam follower to move said actuator  
18 into said non-pressurising position.  
19

20 4. The printer of claim 1 further including:  
21 a biasing element, said actuator being urged to pressurise said  
22 chamber by said biasing element.  
23

24 5. The printer of claim 4, wherein:  
25 wherein said biasing element is a compression spring.  
26

27 6. The printer of claim 5, wherein said compression spring is a coiled  
28 compression spring.  
29

30 7. The printer of claim 4, wherein said biasing element is integral  
31 with said actuator.  
32

1           8.     The printer of claim 1 further including:  
2                 a guide element, said actuator being mounted on said guide  
3                 element for reciprocating movement therealong.

4  
5           9.     The printer of claim 8, wherein:  
6                 the actuator includes front and rear faces, each with a projection  
7                 extending outwardly therefrom, and wherein:  
8                 said guide element includes a pair of guide arms adjacent each  
9                 face of said actuator, each pair of arms defining a guide slot along which a said  
10                projection runs in use.

11  
12          10.    The printer of claim 4, further including a guide element, said  
13                actuator being mounted on said guide element for reciprocating movement  
14                therealong, and wherein said biasing element is mounted within said guide  
15                element in a drop-in manner.

16  
17          11.    The printer of claim 1, wherein said pump chamber includes a  
18                diaphragm for varying the volume of said chamber, and said actuator acts on  
19                said diaphragm to pressurise said chamber.

20  
21          12.    The printer of claim 1 further including:  
22                an out-of-ink switch and a trigger element on said actuator for  
23                triggering said out-of-ink switch when said actuator has moved to a  
24                predetermined position.

25  
26          13.    The printer of claim 12, wherein said trigger element is an integral  
27                part of said actuator.

28  
29          14.    The printer of claim 1, wherein said ink reservoir is provided in a  
30                replaceable cartridge.

31

1           15.    The printer of claim 1, further including a biasing element that acts  
2 on said actuator to pressurise said chamber, wherein said biasing element, said  
3 cam and said actuator are positioned so as to be aligned with one another and  
4 with said chamber in a straight line.

5  
6           16.    The printer of claim 1, further including a biasing element that acts  
7 on said actuator to pressurise said chamber, said actuator being mounted in a  
8 guide element for reciprocal motion therealong and said biasing element being  
9 mounted between said guide element and an end of said actuator distal from  
10 said pump chamber.

11  
12           17.    The printer of claim 1, further including a biasing element that acts  
13 on said actuator to pressurise said chamber, said biasing element and said cam  
14 acting directly on said actuator.

15  
16           18.    The printer of claim 1, further including a spring member for  
17 causing said actuator to pressurise said chamber, wherein said actuator moves  
18 in a reciprocating manner, and wherein said spring member acts on an end of  
19 said actuator that is distal from an end of said actuator that engages said pump  
20 chamber.

21  
22           19.    A method of supplying ink from an ink reservoir of an inkjet printer  
23 through a pump chamber, the method including:

24                   providing an actuator to pressurise said chamber,  
25                   providing a biasing element to bias said actuator to pressurise said  
26 pump chamber;

27                   accommodating a cam on a camshaft that extends through an  
28 opening in said actuator, and rotating said cam to act on said actuator against  
29 said biasing element, so as to remove pressure from said pump chamber when  
30 said chamber is in need of refilling by said ink reservoir.

31

1           20. An ink pumping mechanism for pressurising a pump chamber  
2 associated with an ink reservoir of an inkjet printer, said ink pumping  
3 mechanism including:

4           an actuator for pressurising said pump chamber; and  
5           a cam to move said actuator into a position in which said actuator does  
6 not pressurise said chamber;

7           wherein said actuator includes a body portion having an opening therein  
8 through which a camshaft of said cam extends.  
9

10          21. The ink pumping mechanism of claim 20, wherein said opening has  
11 an inner surface on which is provided a cam follower, said cam engaging said  
12 cam follower to move said actuator.  
13

14          22. An actuator for an ink pump mechanism of an inkjet printer, the  
15 printer having an ink reservoir and pump chamber that is pressurised by the ink  
16 pump mechanism, said actuator including:

17          a body portion defining an opening therein for accommodating the  
18 camshaft of a cam;

19          an end portion on which a biasing element acts for biasing said actuator  
20 to pressurise said chamber; and

21          a projection, distal from said end portion, for engaging said diaphragm.  
22

23          23. The actuator of claim 22, wherein said opening has an inner  
24 surface on which is provided a cam follower, said cam engaging said cam  
25 follower to move said actuator.  
26

27          24. A method of making an inkjet printer having an ink pump  
28 mechanism for pressurising a pump chamber of an ink reservoir, the method  
29 including:

30          providing an actuator for acting on said pump chamber in order to  
31 pressurise said chamber;

1 providing a biasing element that acts directly on said actuator to urge  
2 said actuator to depress said diaphragm; and

3 providing a cam for acting on said actuator to oppose said biasing  
4 element, said cam being mounted on a camshaft that extends through said  
5 actuator.

6  
7 25. The method of claim 24, wherein said biasing element is provided  
8 as a compression spring that acts on said actuator on an end thereof distal from  
9 said pump.

10  
11 26. The method of claim 25 further including:

12 mounting said actuator on a guide element for reciprocating  
13 movement therealong, said biasing element being mounted within said  
14 guide element prior to the mounting of said actuator on said guide  
15 element.

16  
17 27. The method of claim 24 wherein said biasing element is provided  
18 by integrally moulding said biasing element as part of said actuator.

19  
20 28. An inkjet printer utilising at least one ink reservoir, ink being  
21 supplied from said reservoir to a printhead through a variable-volume pump  
22 chamber, the printer including an ink pumping mechanism for pressurising said  
23 pump chamber, said ink pumping mechanism including:

24 a slider for acting on said pump chamber;

25 a guide on which said slider is mounted for linear movement;

26 a compression spring mounted on said guide for biasing said  
27 slider to a position in which it pressurises said chamber;

28 and a cam for moving said slider to a position in which it does not  
29 pressurise said chamber, said slider defining an opening therein within which  
30 said cam is accommodated and including a cam follower with which said cam  
31 engages to move said slider.

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